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NOTES ON GEOGRAPHIC DISTRIBUTION

Diplopoda, Chordeumatida, Cleidogonidae, *Pseudotremia salisae* Lewis: Distribution extension north of the Ohio River in Ohio and Illinois, U. S. A.

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The milliped genus *Pseudotremia* (Cleidogonidae) was revised by Shear in 1972, and new species added by Hoffman and Lewis (1997) and Lewis (2000; 2003; 2005) have brought the total number of described species in the genus to 47, making *Pseudotremia* the most speciose genus of millipeds in North America, and one of the most speciose in the world. Yet at least a score of new species already collected await description, and others surely lurk in poorly collected regions of the Appalachian Mountains and the interior karst basins of eastern North America. As with many Nearctic and Palaearctic chordeumatidans, species of *Pseudotremia* prefer habitats that are both moist and cool. Epigean species are generally collected in leaf litter, in montane deciduous forests. Several of these species are also troglophilic, and within their range are found in limestone caves as well; others, with some slight reductions in pigmentation and ocellus number, are known only from caves. Surface occurrences may be revealed by further sampling. However, a clear majority of the species is true troglobiont — known only from caves and showing strong modifications for subterranean life, including reduced size, thin, brittle cuticle, an absence of pigment, nearly complete reduction of the eyes, and elongate legs and antennae. This troglobiotic syndrome also includes partial loss of the metazonital ornamentation of knobs and ridges, and great simplification of the gonopods, but it is less easy to connect these to the effects of living underground (Shear 1972). The presently known geographic range of the genus is depicted in Figure 1. The undescribed species known to us are all within this distributional range. Species occur in the Appalachian Mountains from Pendleton Co., West Virginia, south to Marshall Co., Alabama, and Dade Co., Georgia. "Hot spots" with many sympatric or tightly packed allopatric species include southwestern Virginia, the Allegheny Front along the borders of West Virginia and Virginia, and northeastern Alabama. West of the mountains, the genus occurs in the Tennessee and Kentucky Cumberland Plateau and interior karst basins, but in Tennessee not extending west of 87°30' W, and somewhat less further west in Kentucky. The western limits of the genus have yet to be definitively established, though its absence from much of the extensive karst of central Kentucky, which has been thoroughly collected, is difficult to explain. The Indiana records represent an outlying and somewhat disjunct "hot spot" occurrence; most of the Indiana species appear to be troglobionts, and these Indiana records have been, up to now, the only ones from north of the Ohio River attributable to a known species. That species of *Pseudotremia* once occurred further north is demonstrated by this evidently relict group of species in southern Indiana and by fossil specimens, probably Pleistocene in age, from a cave in western Maryland, which will be discussed in more detail elsewhere. *Pseudotremia salisae* Lewis, 2000 was originally described from caves in Crawford and Harrison Counties, Indiana, though it is clear from the size, pigmentation and large eyepatches of the species that it is not a troglobiont and surface-dwelling populations are to be expected. A wider distribution for *P. salisae* was implied by the Harrison Co. record, unexpected if the species, like others, was a Little Blue River valley endemic. The new records for Ohio and Illinois are given below and briefly discussed. With this report, *P. salisae* becomes the most wide-ranging species of *Pseudotremia* and is to be expected in further localities close to the Ohio River in Illinois, Indiana and Ohio. All specimens will be deposited in the Virginia Museum of Natural History, Martinsville, VA, U. S. A. 24112.

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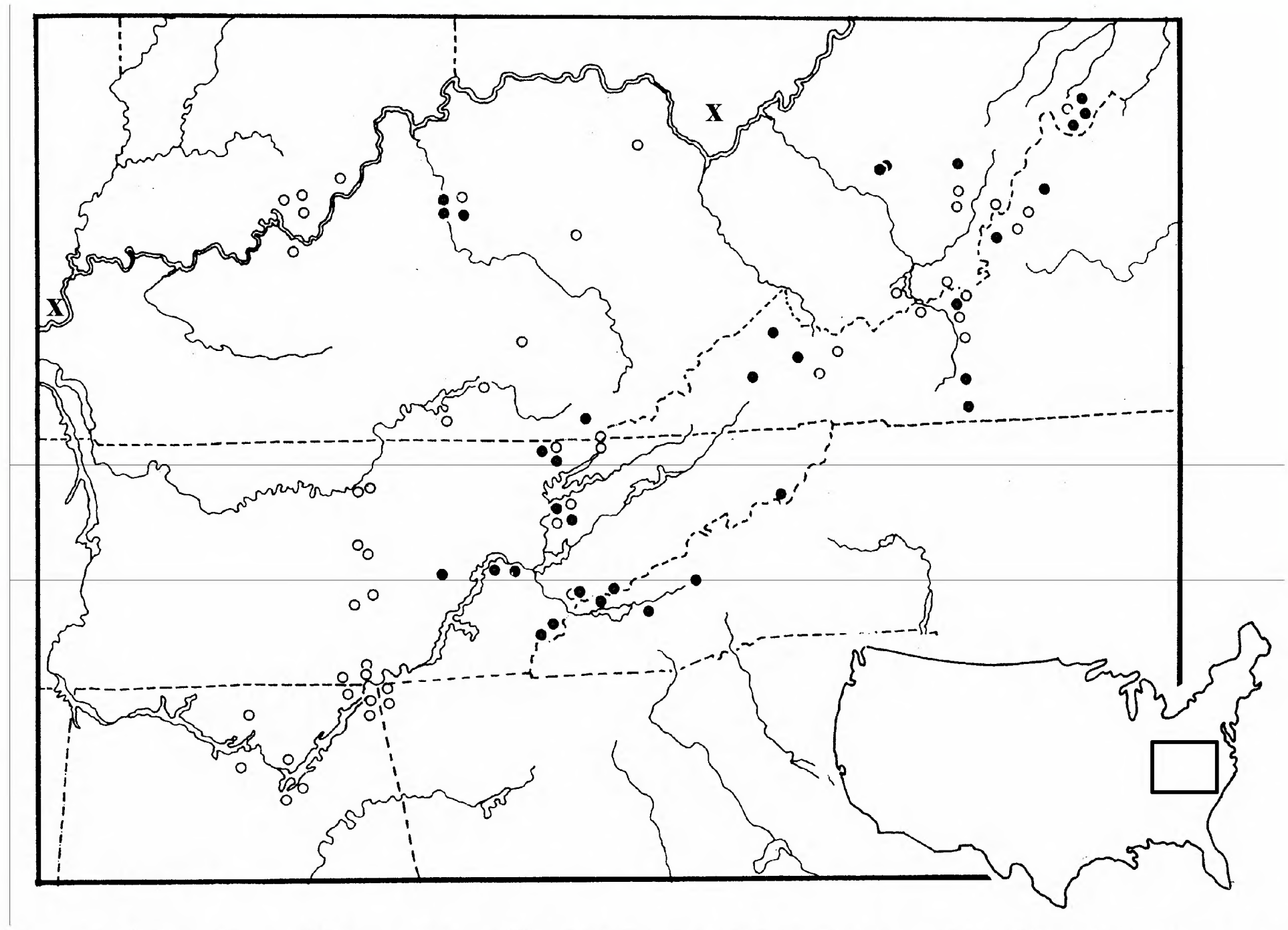

Figure 1. Map of part of the east-central United States, showing selected records of *Pseudotremia* species. Circles represent cave records, solid dots epigean records; **X** indicates new records of *P. salisae* discussed in the text. Map redrawn from Shear (1972).

OHIO: Lawrence Co., Wayne National Forest, Ohio State University Young's Branch Study Area (38°44.2' N, 82°41' W), near Blackfork, Decatur Township, 6 May 1999, M. Farfan, D. Horn, two males. Williams and Hefner (1928) mentioned two species of *Pseudotremia* in their report on the millipeds and centipeds of Ohio. However, *Pseudotremia cavernarum* Cope, 1869, included in the report, was described as "Not yet reported in Ohio." It is highly unlikely that this species ever will be found in Ohio since it is known only from one or two caves in a small area of western Virginia. On the other hand, Williams and Hefner reported *Pseudotremia carterensis* Packard, 1883 on the basis of a single female collected from a rotten stump near Marietta, Washington Co., Ohio. This record has never been verified and remains dubious in the absence of subsequent collections, the loss of the Williams and Hefner collection, and the known range of the species 160 km to the southwest in caves in Kentucky. At the time Williams and Hefner were working, species determinations of female *Pseudotremia* were not possible. However, the known localities for *P. carterensis,* the Carter Caves of Carter Co., Kentucky, are across the Ohio River from Lawrence Co., Ohio. The many significant differences between *P. salisae* and *P. carterensis*, detailed in the descriptions by Lewis (2000) and Shear (1972), make it clear the two species are distinct. While *P. salisae* is the first definitive record of this genus from Ohio, it is entirely possible that it, or another species, lives in Washington Co. about 130k to the northeast. Both places are in the rolling hill country of the westernmost Allegheny Plateau, which slopes northwestward to the Great Lakes Plain.

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ILLINOIS: Hardin Co., Cave Spring Cave, from rear section of cave, guano-covered breakdown block, 3 January 1975, Julian J. Lewis, male, juveniles; same locality, 21 November 1965, E. Albert and C. Leininger, juveniles. Hardin Co. is located in southernmost Illinois just across the Ohio River from Kentucky, but no other *Pseudotremia* species have been recorded from within approximately 240 km, so this represents a significant westward extension of the generic range. The first report of *Pseudotremia* from Cave Spring Cave was made by Peck and Lewis (1978), without attribution to a species. Cave Spring Cave is briefly described by Bretz and Harris (1961). At the time the 1975 collection was made, the cave was endangered by a quarrying operation, but to the best of our knowledge still exists.

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